

## Graywater Reuse in Kansas

Like most of the United States, Kansas began experiencing a severe drought in 2012. This extreme weather event has prompted citizens, elected officials and regulators to take a closer look at water reuse opportunities. One option to conserve drinking water is to reuse what is known as 'graywater'. Graywater is wastewater from showers, bathtubs, clothes-washing machines and bathroom sinks.

Graywater reuse involves diverting the graywater from acceptable sources within a home to below the earth's surface to irrigate landscaping, while preserving potable drinking water.

The table below shows the estimated percent of wastewater generated from various sources in a typical home. When added together, the sources of graywater equal approximately 50 percent of the total wastewater generated from a typical household, or an average of 18,250 gallons per year. At the same time, it is estimated that the average homeowner uses 35,000 gallons of water per year to irrigate landscaping.

As you can see, graywater reuse has the potential to save a significant amount of treated drinking water. This savings is multi-faceted, and includes (1) a conservation of the potable water supply available for other purposes, (2) water treatment cost savings, and (3) customer savings due to less monthly potable water use.

Source	Gal/Cap/Day	Percent
Toilet	26.7	26.0
Kitchen	7.0	7.0
Laundry	21.6	22.0
Bath/Shower/Sink	23.3	23.0
Leaks	13.7	14.0
Other	7.7	8.0
Total	100.0	100.0

Source: Water Environment Research Foundation's Long-term Effects of Landscape Irrigation Using Household Graywater report (Roesner, et al., 2006)

Despite the obvious benefits of graywater reuse, graywater can pose a serious health risk and can negatively affect the environment when not treated by operators certified in this area. Because graywater is wastewater, it contains pathogens such as bacteria, viruses and household chemicals

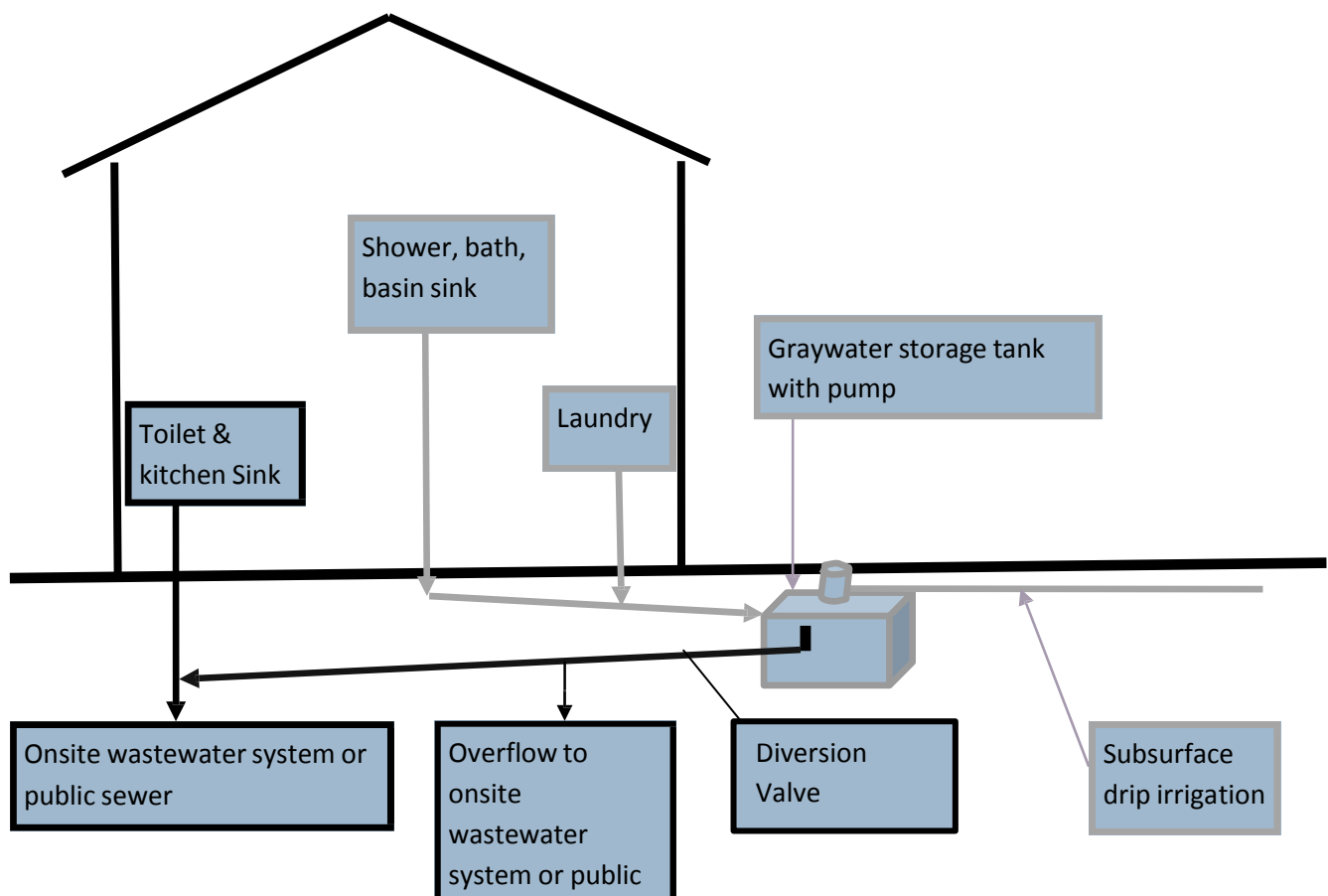
such as bleach, detergents and soaps. It can have adverse health impacts if ingested, and if not managed properly, it can affect water quality.

The Kansas Department of Health and Environment (KDHE) recently developed guidance on a type of residential graywater system that would minimize public and environmental risks. City and county government officials make the decision as to whether or not graywater reuse is allowed in your area. The intent of KDHE's guidance is to provide local governments and Kansas citizens an example of the type of system that would minimize the health and environmental risks, as well as identify best practices.

The "Graywater System Specification" developed by KDHE can be found online at:  
[http://www.kdheks.gov/nps/lepp/download/Graywater\\_System\\_Specification\\_FINAL.pdf](http://www.kdheks.gov/nps/lepp/download/Graywater_System_Specification_FINAL.pdf)

Local governments are encouraged to reference the guidance when updating or establishing local codes regarding graywater reuse systems and when individual homeowners request information on such systems. KDHE is available to provide technical assistance to local governments with code updates, as well as on a case-by-case basis as homeowners request such systems.

The diagram below is an example of a graywater system:



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